United States Patent [19]

Greenberg

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[54] **HALOGEN SPOTLIGHT ASSEMBLY FOR CEILING FAN**

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[73] Assignee: **Beverly Hills Trading Company, Inc.**, Los Angeles, Calif.

[21] Appl. No.: **117,500**

[22] Filed: **Nov. 6, 1987**

[51] **Int. Cl.**[4] **F21S 1/04**

[52] **U.S. Cl.** **362/96**; 362/294; 362/405

[58] **Field of Search** 362/96, 249, 294, 404, 362/405, 406; 416/5

[56] **References Cited**

U.S. PATENT DOCUMENTS

986,550	3/1911	Cuming	362/405 X
1,663,656	3/1928	Guth	362/406 X
4,363,083	12/1982	Tanaka et al.	362/294 X
4,402,649	9/1983	Laurel	416/5
4,426,677	1/1984	Dennis	362/294 X
4,428,032	1/1984	Workman	362/96
4,631,651	12/1986	Bergin et al.	362/267
4,685,038	8/1987	Huang	362/406 X

FOREIGN PATENT DOCUMENTS

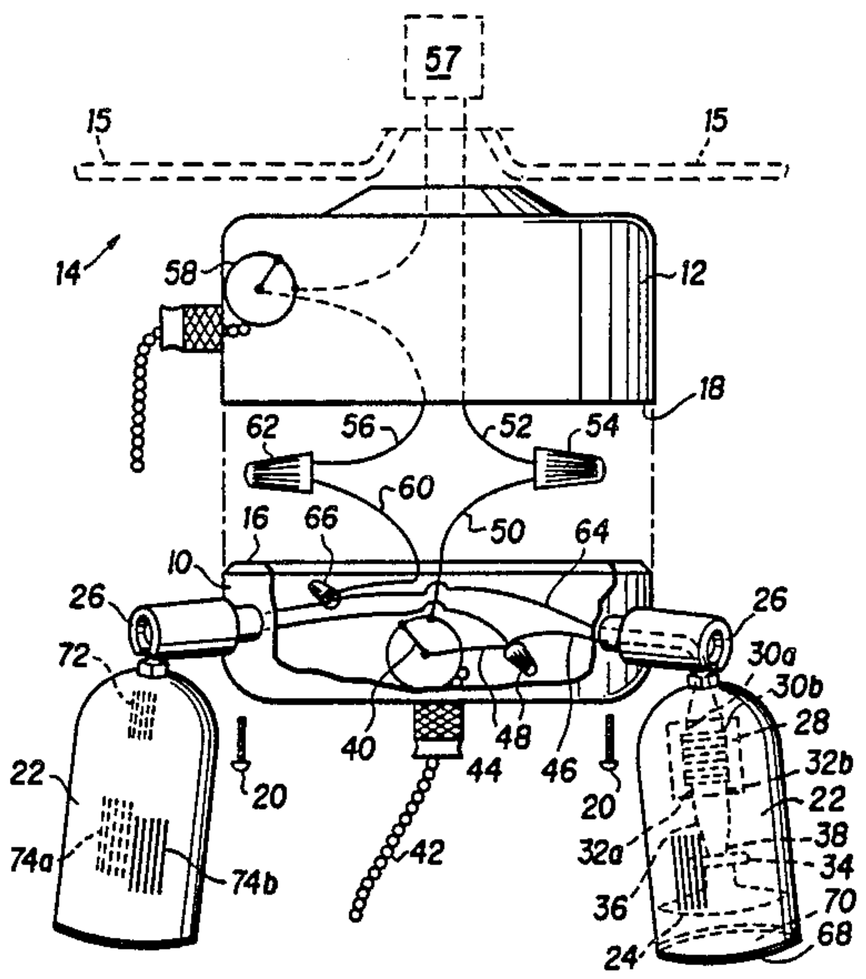
833331	3/1952	Fed. Rep. of Germany	362/405
7408338	12/1975	Netherlands	362/405

Primary Examiner—Ira S. Lazarus
Assistant Examiner—Richard R. Cole
Attorney, Agent, or Firm—Bernard, Rothwell & Brown

[57] **ABSTRACT**

A halogen spotlight device for an electrically operated ceiling fan includes a spotlight base portion configured for attachment to a switch housing of the ceiling fan. At least one spotlight body for housing a halogen bulb is mounted on the spotlight base portion by a pivoting connector, the spotlight body having a light outlet. A transformer for converting 120 volts to 12 volts has an input connected to a 120 volt household line by a switch, and an output connected to the halogen bulb in the spotlight body by a corresponding socket, for providing a 12 volt electric current to operate the halogen bulb.

10 Claims, 1 Drawing Sheet



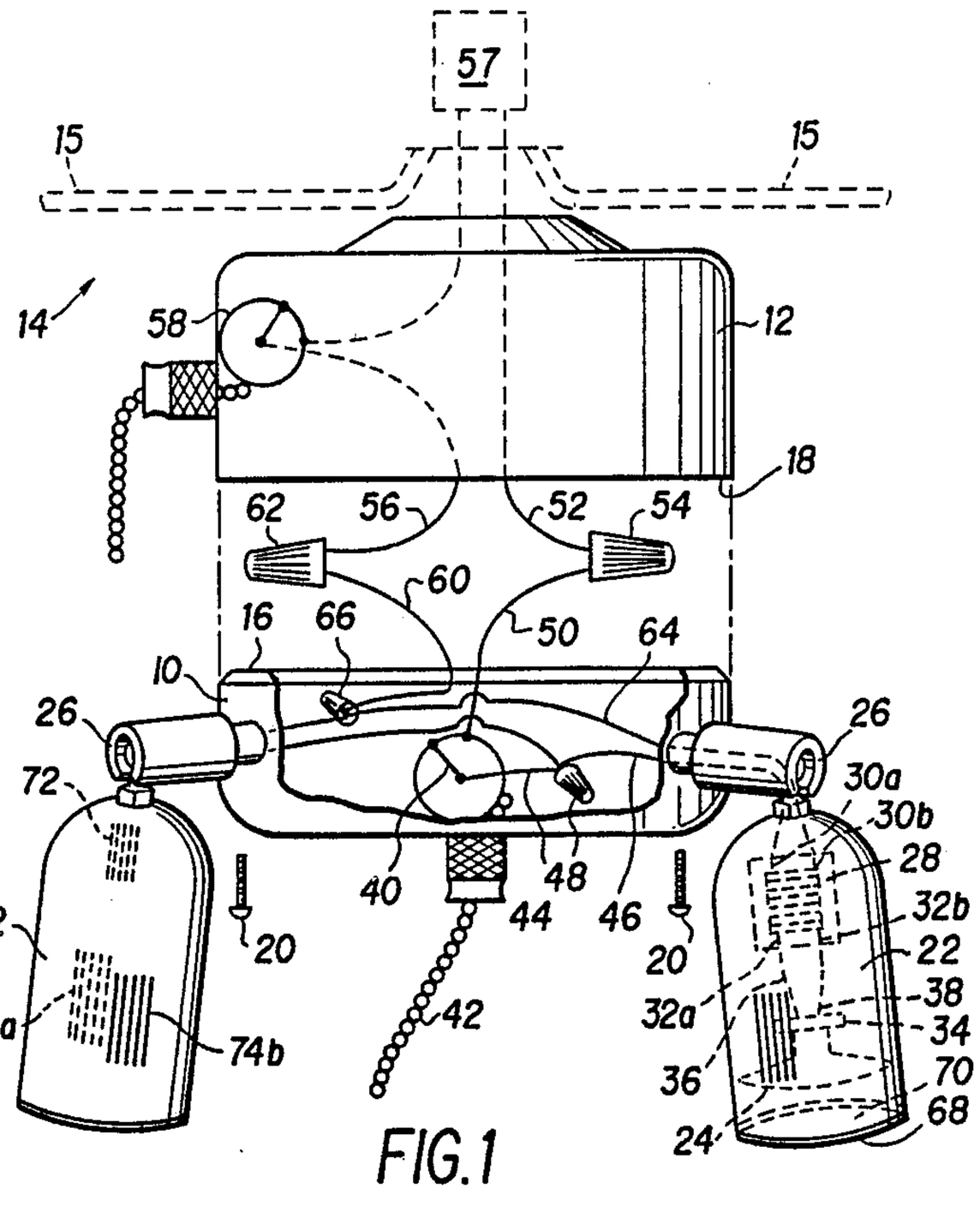

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FIG. 1

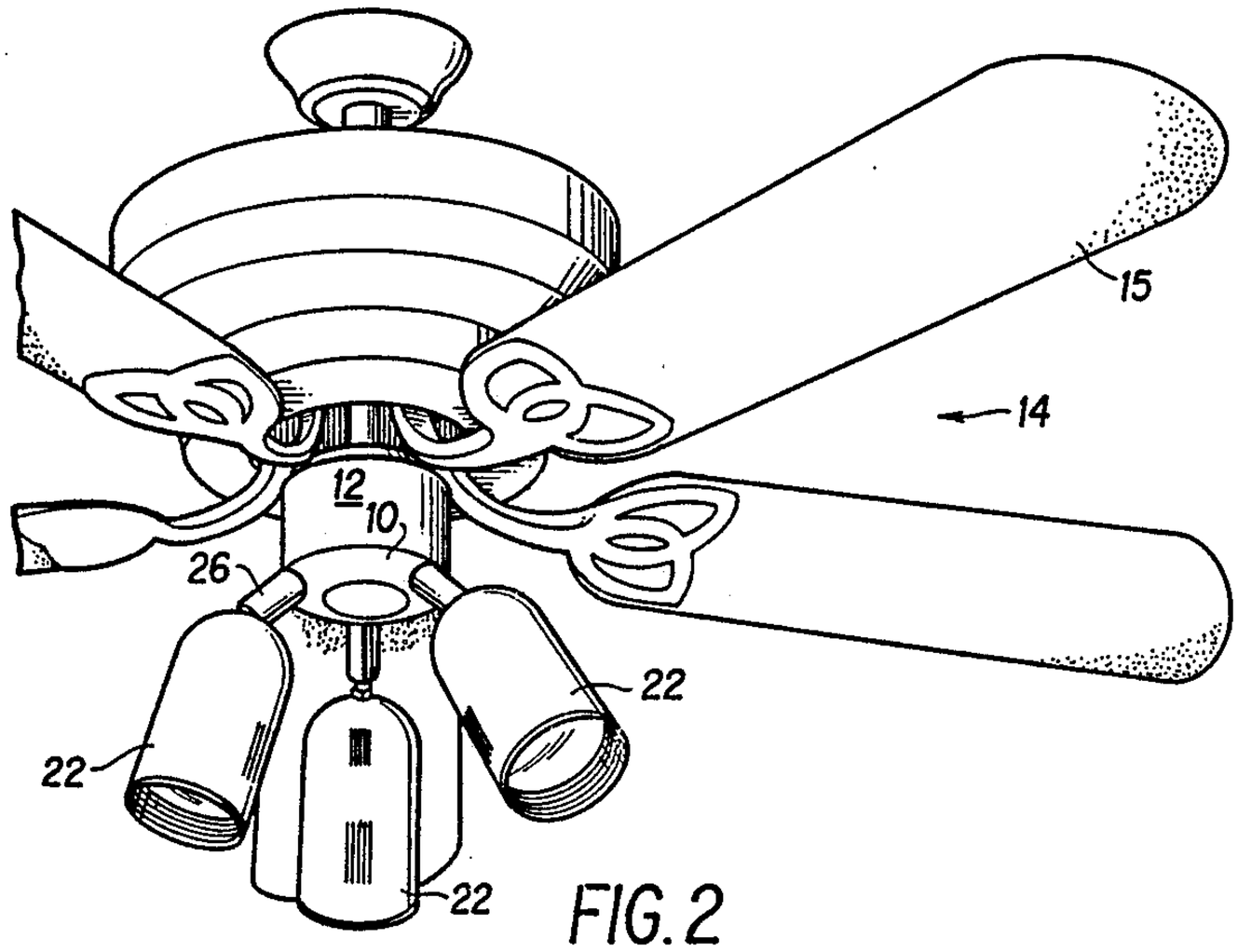
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FIG. 2

HALOGEN SPOTLIGHT ASSEMBLY FOR CEILING FAN

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a lighting assembly for mounting on a ceiling fan.

2. Description of the Background Art

Ceiling fans are useful devices for circulating air in a room and maintaining a comfortable environment. Often, a ceiling fan is installed by replacing a previously installed overhead light fixture.

Replacement of an overhead light fixture with only a ceiling fan results in a concomitant decrease in the amount of light available for illuminating a room. Accordingly, ceiling fans often are provided with light fixtures that are operated with electricity supplied through the ceiling fan to provide additional illumination in a room, see, e.g., U.S. Pat. No. 4,428,032 to Workman. Generally, ceiling fan light fixtures use incandescent bulbs, which may provide insufficient light for comfortable reading or study without eye strain.

It is also known to utilize an annular fluorescent lightbulb disposed within a translucent ceiling fan housing for illumination, see, e.g., U.S. Pat. No. 4,402,649. However, the diffused light produced by such an arrangement may also be insufficient for comfortable reading and study without eye strain, as there is no provision for directing light where it is specifically needed.

There remains a need in the art for a lighting device for mounting on a ceiling fan that provides brightly illuminating light that can be directed to a particularly desired location.

SUMMARY OF THE INVENTION

In accordance with the present invention, a halogen spotlight assembly for mounting on a ceiling fan comprises a spotlight base portion configured for attachment to a switch housing of a ceiling fan. At least one spotlight body having a light outlet is provided for housing a halogen bulb, the spotlight body being mounted on the spotlight base portion by a pivoting connector. Electric transformer means having an input and an output are provided for converting 120 volt electric household current to 12 volt electric current, for operating a corresponding halogen bulb within the spotlight body. A switch is connected to the transformer input, the switch having means for connecting to a household electric line for selectively connecting the transformer thereto. A socket is provided for mating with a corresponding halogen bulb within the spotlight, the socket being connected to the transformer output for connecting the transformer output to the corresponding halogen bulb.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a partly schematic elevation view, partially exploded and with portions broken away for clarity, of a halogen spotlight assembly in accordance with the present invention.

FIG. **2** is a perspective view with portions broken away showing the halogen spotlight device of the present invention mounted on a ceiling fan.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Until the present invention, light fixtures for ceiling fans were restricted to the use of incandescent lightbulbs, and less frequently, fluorescent lightbulbs, because light fixtures for ceiling fans utilize household current, which in the United States is about 120 volts AC. There is no suggestion in the prior art to utilize halogen bulbs, which require approximately 12 volt electric current, as it was not known if the problems associated with providing a halogen light fixture for a ceiling fan operated by household electricity, such as destructive build-up of heat, could be overcome to produce a commercially feasible product having consumer appeal.

With reference to FIGS. **1** and **2**, a halogen spotlight assembly according to the present invention, includes a spotlight base portion **10** that is configured for attachment to a switch housing **12** of an electrically operated ceiling fan **14** having fan blades **15**. The spotlight assembly of the invention is installed after removal of a base plate (not shown) of the ceiling fan switch housing **12**. In the embodiment shown, the spotlight base portion **10** has an internally flanged rim **16** that mates with the lower rim **18** of switch housing **12**, for attachment to the switch housing by means of scress **20** shown in FIG. **1**.

A plurality of spotlight bodies **22** are provided for housing respective halogen bulbs **24**. Each spotlight body **22** is mounted on the spotlight base portion **10** by means of a pivoting ball and socket connector **26**. Within each spotlight body **22** is housed an electric transformer **28** for converting electric household current (about 120 volts) to 12 volt electric current for operating a corresponding halogen bulb **24** within spotlight body **22**.

Each transformer **28** includes input means **30***a* and **30***b* for connecting the transformer to a household current, and output means **32***a* and **32***b* for providing a 12 volt electric current to corresponding halogen bulb **24**.

A socket **34** is provided within the spotlight body **22** for mating with the corresponding halogen bulb **24**, which may be a low voltage halogen bulb such as type MR-16 (maximum 20 watt). Socket **34** is connected to the transformer output means **3***a* and **32***b* with wires **36** and **38**.

A switch **4**, which may be operated by a chain **42**, is connected to transformer input **30***a* through wires **44** and **46**, which, in the embodiment shown, are tied together by wire connector **48**. A wire **50** connected to switch **40** is connected to a household current line by being tied to line **52** through wire connector **54**, which provides means for connecting switch **40** to the household electric line for selectively connecting the transformer to the household line. In the embodiment shown, wires **52** and **56** are connected to the household electrical system **57** through switch housing **12**, under the control of chain operated switch **58**. Wire **56** is connected to wire **60** through wire connector **62** and to transformer input **30***b* through wire **64**, which is connected to wire **60** by wire connector **66**.

During operation, light from halogen bulb **24** exits spotlight body **22** through a light outlet **68** covered by a removable window **70** that, when removed, permits access to inside of each spotlight body for installation of halogen bulbs **24**. During operation, potentially damaging heat build-up from the transformer **28** and the halogen bulb **24** is prevented by upper body vents **72** and

lower opposed body vents 74*a* and 74*b*. The vents allow air circulation between inside and outside the spotlight bodies to prevent potentially dangerous build-up of heat.

Since many modifications, variations and changes in detail may be made to the described embodiment, it is intended that all matter in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A halogen spotlight assembly for mounting on a ceiling fan, comprising

(a) a spotlight base portion configured for attachment to a switch housing of a ceiling fan;

(b) at least one spotlight body for housing a halogen bulb, the spotlight body being mounted on said spotlight base portion by a pivoting connector, the spotlight body having a light outlet;

(c) electric transformer means housed within the spotlight assembly for converting household electric current to electric current of about 12 volts for operating a corresponding halogen bulb within the spotlight body, the transformer having an input and an output;

(d) a switch connected to the transformer input, the switch having means for connecting with a household electric line for selectively connecting the transformer to said household electric line; and

(e) socket means for mating with said corresponding halogen bulb within said spotlight body, the socket means being connected to the transformer output for connecting the transformer output to said corresponding halogen bulb.

2. The assembly of claim **1** including a plurality of said spotlight bodies mounted on said base portion.

3. The assembly of claim **2** wherein each of said spotlight bodies houses one of said transformer means.

4. The assembly of claim **3** wherein each of said spotlight bodies is vented.

5. The assembly of claim **4** wherein the light outlet of each spotlight body is covered by a removable window, permitting access to inside each spotlight body.

6. The assembly of claim **1** wherein the corresponding halogen bulb is about a 20 watt halogen bulb.

7. The assembly of claim **1** wherein the pivoting connector is a ball and socket.

8. The assembly of claim **1** wherein said household electric current is about 120 volts.

9. A halogen spotlight assembly for mounting on a ceiling fan, comprising

(a) a spotlight base portion configured for attachment to a switch housing of a ceiling fan;

(b) a plurality of vented spotlight bodies, each spotlight body for housing a halogen bulb, each spotlight body being mounted on said spotlight base portion by a pivoting ball and socket connector, each spotlight body having a light outlet covered by a removable window;

(c) electric transformer means housed within each spotlight body for converting household electric current of about 120 volts to an electric current of about 12 volts for operating a corresponding halogen bulb within the spotlight body, each transformer having an input and an output;

(d) a switch connected to each transformer input, the switch having means for connectihg with a household electric line of about 120 volts for selectively connecting the transformer to said household electric line; and

(e) socket means for mating with said corresponding halogen bulb within each spotlight body, the socket means being connected to the corresponding transformer output for connecting the corresponding transformer output to said corresponding halogen bulb.

10. A ceiling fan with a halogen spotlight assembly, comprising

(a) an electrically operated ceiling fan having rotable fan blades and a switch housing;

(b) a spotlight base portion attached to the switch housing of the ceiling fan;

(c) a plurality of vented spotlight bodies, each spotlight body for housing a halogen bulb, each spotlight body being mounted on said spotlight base portion by a ball and socket pivoting connector, each spotlight body having a light outlet covered by a removable window permitting access to inside each spotlight oody;

(d) electric transformer means housed within each spotlight body for converting household electric current of about 120 volts to an electric current of about 12 volts for operating a corresponding halogen bulb within the spotlight body, each transformer having an input and an output;

(e) a switch connected to each transformer input, the switch having means for connecting with a household electric line of about 120 volts throughout the ceiling fan for selectively connecting the transformer to said household electric line; and

(f) socket means for mating with said corresponding halogen bulb within each spotlight body, the socket means being connected to the corresponding transformer output for connecting the corresponding transformer output to said corresponding halogen bulb.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 4,796,166

DATED : January 3, 1989

INVENTOR(S) : Shelley A. Greenberg

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 2, line 27, "scress" should be -- screws --;

Column 2, line 45, "3a" should be -- 32a --;

Column 2, line 47, "4" should be -- 40 --.

Column 4, line 36, "oody" should be -- body --.

Signed and Sealed this

Twenty-third Day of January, 1990

Attest:

JEFFREY M. SAMUELS

Attesting Officer

Acting Commissioner of Patents and Trademarks